8th Grade
Mathematics

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Hazelwood School District

Mission Statement

We are a collaborative learning community guided by a relentless focus to ensure each student achieves maximum growth.

Vision Statement

HSD will foster lifelong learners, productive citizens and responsible leaders for an ever-evolving society.

Board of Education on January 5, 2010

Goals

Goal #1: Hazelwood students will meet or exceed state standards in all curricular areas with emphasis in reading, writing, mathematics, science and social studies.

Goal #2: Hazelwood staff will acquire and apply skills necessary for improving student achievement.

Goal #3: Hazelwood School District, the community and all families will support the learning of all children.

Mathematics Curriculum Overview

2015 MAP data indicates a need for strengthening our current mathematics curriculum as the district's mathematics students scoring proficient and advanced fell to 37.1% from 41.8%.

Additionally, a change in state standards and learning progressions has resulted in a need for intensive curriculum revision to ensure Hazelwood's students are adequately prepared to meet grade-level learning expectations.

After a careful review of annual data it was determined by the Curriculum Department that a revised curriculum was a high-priority necessity.

The committee members aligned the curriculum with the 2010 Missouri Learning Standards published by DESE. The curriculum meets all of the state and district requirements for research, technology, workplace readiness skills, gender/racial equity, and disability awareness.

The curriculum contains unit assessments that are rigorous and outline clear expectations. As the curriculum is implemented and taught, the assessments will be revised. **The assessments are required**; the learning activities are suggested. Teachers are encouraged to select the learning activities which meet the needs of their students. Some of the learning activities are very sequential and, when all of them are used, a student should be able to successfully complete the unit assessment. Other activities provide a menu of suggestions, and the teacher should select from those offered or design his/her own.

The plan for professional development includes multiple opportunities for training to help ensure that the middle school mathematics curricula are implemented effectively and with fidelity. Initial training will be provided during district professional development opportunities to cover content and pedagogy. Beyond initial training, ongoing professional development to familiarize teachers with specific curriculum activities and expectations. In addition to professional development days, ongoing training will be provided during Professional Learning Community (PLC) meetings to assist with upcoming skills and nuances in learning objectives. The Mathematics District Curriculum Coach and District Coordinator will provide teachers training to familiarize them with curriculum activities and expectations. Finally, ongoing training during PLC meetings will assist teachers with upcoming skills and nuances in the learning objectives.

COURSE TITLE: 8th Grade Mathematics

GRADE LEVEL: 8th Grade

CONTENT AREA: Mathematics

Course Description:

In Grade 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

Course Rationale:

Mathematics is the foundation of science, technology and engineering. Everyone needs mathematics in order to function in society and the world of work. Therefore, the Hazelwood School District curriculum reflects the understanding that mathematical literacy is important for all students to possess and apply. The curriculum, based on the National Council of Teachers of Mathematics Standards, Missouri Learning Standards and the Missouri Show Me Standards, will allow our students to explore, discover, analyze and apply mathematics.

Our students will learn from a variety of teaching techniques and strategies which use all modes of learning, involving various resources, hands-on activities, audiovisual aides, and the use of computer technology and calculators. Our students will be prepared to function in a global society through the use of problem solving, communication, and reasoning by integrating the mathematical concepts across the curriculum areas in real-world situations.

Course Scope and Sequence

Unit 1: Real Number (Approx. 19 class periods)	Unit 2: Equations in One Variable (Approx. 31 class periods)	Unit 3: Functions (Approx. 30 class periods)
Unit 4: Geometry (Approx. 30 class periods)	Unit 5: Probability and Statistics (Approx. 30 class periods)	

Essential Terminology/Vocabulary

Absolute value, acute triangle, addictive inverse, adjacent angle, area, circle, regular polygon, quadrilateral, triangle, circumference, coefficient, commissions, complementary angles, compound events, coordinate plane, coordinate system, coordinates, cube, data, degree of visual overlap, diagram, distributive property, equations, equilateral triangle, estimate, evaluate, event, expression, factor, frequency, geometric figure, graph, gratuities, inequality,

inferences, integers, isosceles triangle, likely event, long division, markdowns, markups, mean absolute deviation, measure of center, measure of variation, non-zero divisor, number line, obtuse triangle, ordered pair, origin, percent, percent decrease, percent error, percent increase, plane sections, polygon, populations, prediction, prism, probability, proportion, proportional relationship, protractor, pyramid, quadrants, quadrilateral, quotient, random sample, rate, ratio, rational coefficient, rational number, relative frequency, repeating decimal, right prism, right rectangular prism, right rectangular pyramid, right triangle, sample space, scale, scale drawing, scalene triangle, signed number, simple interest, simulations, solution set, spread, statistical variability, statistics, substitution, supplementary angles, surface area, tax, cube, right prism, terminating decimal, tree diagrams, triangle, unit rate, constant of proportionality, unlikely event, variable, vertical angle, volume, x-axis, x-coordinate, y-axis, y-coordinate

Unit Objectives

Unit 1: Real Numbers (Approx. 19 class periods)

- Work with radicals and integer exponents.
- Know that there are numbers that are not rational, and approximate them by rational numbers.

Unit 2: Equations in One Variable (Approx. 31 class periods)

- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.
- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

Unit 3: Functions (Approx. 30 class periods)

- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

Unit 4: Geometry (Approx. 30 class periods)

- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Unit 5: Probability and Statistics (Approx. 30 class periods)

- Investigate patterns of association in bivariate data.

Approved Course Materials and Resources:
Glencoe Math Course 3 McGraw Hill Education Copyright © 2015